The Great Property Crime Drop: A regional analysis

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Aim: *To describe and discuss regional variation between parts of NSW in the rate at which theft and robbery offences have fallen.*

Method: *Percentage changes in rates of offending in robbery and various categories of theft were calculated for the period 2000 to 2012. Changes in the extent to which rates of crime across areas have become more similar were quantified by comparing the standard deviation in crime rates across areas in 2000 to the standard deviation in crime rates in 2012. Product moment calculations were used to measure (a) the extent to which areas with high crime rates in 2000 also had high crime rates in 2012 and (b) the extent to which areas with the highest crime rates in 2000 had the largest falls in crime in 2012.*

Results: *The fall in property crime and robbery across NSW between 2000 and 2012 has been very uneven; being much larger in Sydney and other urban areas than in rural areas. The fall in theft offence rates ranges from 62 per cent in the Sydney Statistical Division (SD) to 5.9 per cent in the Northern SD. Similarly, the fall in robbery rates ranges from 70.8 per cent in the Sydney SD to 21.9 per cent in the Northern SD. In some areas some offences actually increased. The Murray, Northern, Murrumbidgee, North Western, Hunter and Central West SDs, for example, all experienced an increase in steal from a retail store.*

Conclusion: *State Plan performance measures for improvements in public safety should take into account regional changes in rates of offending as well as changes in the overall volume of offending.*

Keywords: *NSW, property crime, robbery, theft, rates, rural, urban, metropolitan*

Introduction

Between 2000 and 2012, New South Wales (NSW), along with most other Australian States and Territories, experienced a remarkable fall in theft and robbery[1] offences[2]. Figure 1 shows the annual rate of these two types of offence[3] for 2000 and 2012. Over this period the robbery rate fell 66.5 per cent while the theft[4] rate fell 54.8 per cent. Rates of these two categories of recorded crime in NSW are now the lowest they have been since 1995.
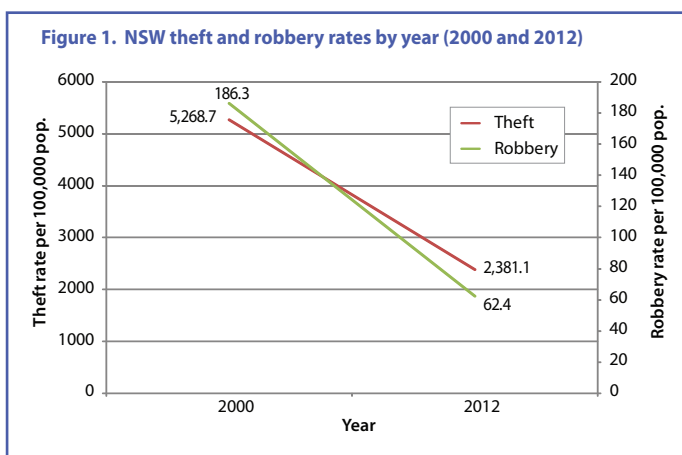
The fall in theft and robbery is not specific to any particular kind of theft or robbery offence. As can be seen from Table 1, there have been substantial reductions across the State in all the major categories of robbery and theft.

Table 1. NSW theft and robbery rates and percentage decline, 2000 vs 2012

Offence	NSW rate per 100,000 population		% decline
	2000	2012	
Break and enter dwelling	1258.9	554.5	-56.0
Break and enter non-dwelling	777.4	222.5	-71.4
Motor vehicle theft	809.6	249.5	-69.2
Steal from motor vehicle	1407.7	644.6	-54.2
Steal from retail store	328	300	-8.5
Steal from dwelling	490.4	299.2	-39.0
Steal from person	196.8	110.8	-43.7
Total Theft*	**5268.7**	**2381.1**	**-54.8**
Robbery without a weapon	108.2	38.3	-64.6
Robbery with a firearm	11.1	4.8	-56.8
Robbery with a weapon not a firearm	67	19.2	-71.3
Total Robbery	**186.3**	**62.4**	**-66.5**

* *includes break and enter dwelling and non-dwelling, motor vehicle theft, and steal from motor vehicle/dwelling/person/retail store*

Figure 1. NSW theft and robbery rates by year (2000 and 2012)

While the overall decline in theft and robbery over the long term is welcome news, not all communities throughout NSW have benefited equally from the fall in these crimes. The variation in crime trends across the State is quite substantial. In some areas, rates of theft have actually increased. The purpose of this brief is to describe and discuss the variation in long-term trends across different regions of NSW.

We begin by examining changes in the rate of theft and robbery offences between 2000 and 2012 across NSW Statistical Divisions (SDs) and Metropolitan Statistical Sub-Divisions (SSDs). We then examine trends in robbery and different types of theft offences within SDs and SSDs. Finally, data are presented comparing each SD and SSD with the State as a whole for rates of robbery[5] and each theft offence. Appendix 1 provides maps of the NSW SDs and Metropolitan SSDs. Appendix 2 provides a list of the Local Government Areas (LGAs) contained within each SD and SSD.

For reasons of space, the analysis below is conducted in terms of NSW SDs and Metropolitan SSDs rather than in terms of LGAs. It is recognised, however, that many readers may be interested in long-term trends in these crimes within their LGA. The electronic data file associated with this publication (available from BOCSAR's website *here*) provides the rate of each theft and robbery offence in 2000 and in 2012 and the percentage decline (or increase) for each LGA. Rates for LGAs with less than 20 incidents for each offence in either 2000 or 2012 have been suppressed.

Before we begin, it is useful to introduce two statistical terms which are used in this brief to help describe the trends in crime. The first term is the 'standard deviation'. The standard deviation of a set of measurements is the average variation around the mean of the measurements. To say that crime rates across areas have a low standard deviation is to say those crime rates are clustered together or fairly similar. Equally, to say that the standard deviation in crime rates across areas has fallen over time is to say that the crime rates across those areas have become more similar to one another.

The second term is the 'correlation coefficient'. This is a measure of the extent to which two sets of measurements tend to be associated with one another (e.g. measurements of height and weight). Correlation coefficients (or correlations) vary between +1.0 and -1.0. A correlation of +1.0 means that higher values on one measure are perfectly associated with higher values on the other measure. A correlation of -1.0 means that higher values on one measure are perfectly associated with lower values on the other measure. A correlation coefficient of zero means that there is no relationship between two measures.

Correlations[6] are used in what follows for two purposes. The first is to determine whether areas which had a high crime rate in 2000 also had a high crime rate in 2012. The second is to determine whether the largest falls in crime occurred in the areas which, in 2000, had the highest crime rates.

The change in theft and robbery by SD

Figure 2 shows the overall decline in theft rates across NSW SDs. It is obvious that all the SDs shown in Figure 2 experienced a decrease in theft rates between 2000 and 2012. There is, however, considerable variation in the size of the fall. The falls range from 62.0 per cent in the Sydney SD down to 5.9 per cent in the Northern SD. There has also been a reduction in the variation in theft rates across areas. The standard deviation in theft rates across SDs fell by 38.8 per cent between 2000 and 2012.

The correlation across SDs in the rate of theft in 2000 and the rate of theft in 2012 is +0.37, indicating that there is a slight tendency for areas that were high in theft in 2000 to be high in theft in 2012. The correlation between the theft rate in 2000 and the size of the change in theft rates between 2000 and 2012 is -0.59, indicating that there is a modest tendency for areas with the higher rates of crime in 2000 to experience larger falls in theft between 2000 and 2012.

Figure 3 shows the decline in robbery rates across the same time period for NSW SDs. Note that this figure does not include results for the Far West SD because incidents of robbery were too rare in that region to measure change in any meaningful way.

There are two noteworthy features of Figure 3. The first is the much higher robbery rate and much larger fall in the robbery rate in the Sydney SD compared with all other SDs. The second is that, while most SDs experienced a fall in robbery rates, two

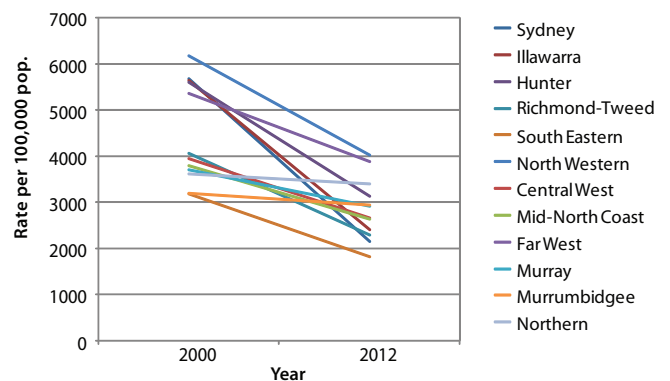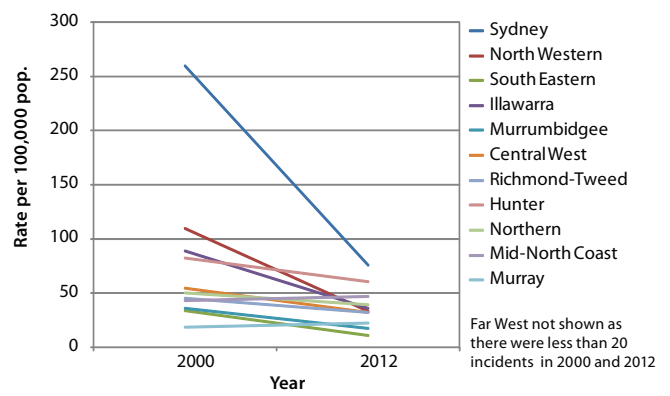**Figure 2. Theft rate by Statistical Division and year (2000 and 2012)**

Legend: Sydney, Illawarra, Hunter, Richmond-Tweed, South Eastern, North Western, Central West, Mid-North Coast, Far West, Murray, Murrumbidgee, Northern

Figure 3. Robbery rate by Statistical Division and year (2000 and 2012)

Legend: Sydney, North Western, South Eastern, Illawarra, Murrumbidgee, Central West, Richmond-Tweed, Hunter, Northern, Mid-North Coast, Murray

Far West not shown as there were less than 20 incidents in 2000 and 2012

did not. They were the Murray SD, where robbery rates rose by 21.0 per cent, and the Mid-North Coast SD, where robbery rates rose by 9.8 per cent. As with theft, the decline in robbery rates (amongst those SDs which experienced a decline) is quite variable: ranging from a drop of 70.8 per cent in the Sydney SD to a drop of 21.9 per cent in the Northern SD.

Although the fall in robbery has been uneven, the SDs were much more closely clustered in their robbery rates in 2012 than they were in 2000. The standard deviation in robbery rates fell by 72.2 per cent between 2000 and 2012. The correlation across areas between the robbery rate in 2000 and the robbery rate in 2012 (+0.78) was much stronger than the corresponding correlation for theft; indicating that areas with high rates of robbery in 2000 tended to have relatively high rates of robbery in 2012.

The correlation between the rate of robbery in 2000 and the size of the decline in robbery rates between 2000 and 2012 was -0.53, suggesting that the size of the fall in robbery rates was modestly related to the magnitude of the robbery rate in a SD in 2000.

The change in theft and robbery by SSD

Figure 4 shows the reduction in theft offences between 2000 and 2012 across Metropolitan SSDs. All SSDs experienced a decline in theft rates. Note, however, the much higher rate and much sharper fall in the theft rate within the Inner Sydney SSD. The magnitude of the fall in theft rates ranges from
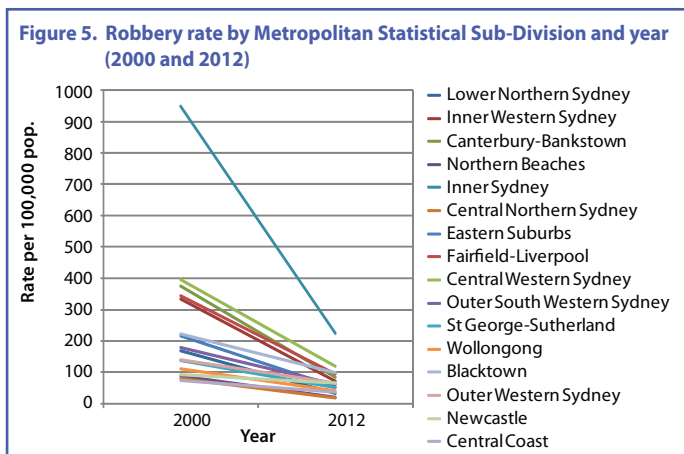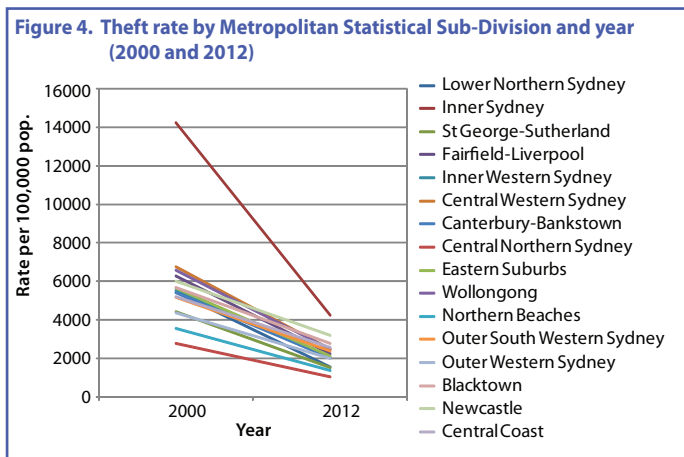
71.6 per cent in Lower Northern Sydney SSD to 46.7 per cent in the Newcastle SSD.
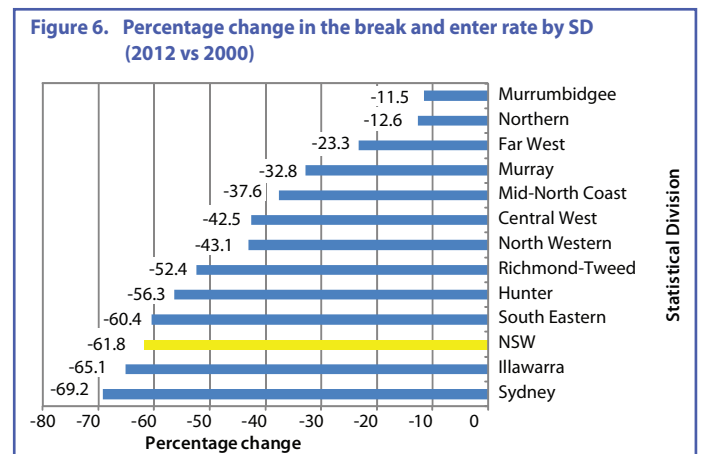
The variation in theft rates across Sydney SSDs was much less marked in 2012 than it was in 2000, with the standard deviation in theft rates declining by 69.0 per cent. The correlation between theft rates across SSDs in 2000 and 2012 was +0.87 indicating a strong tendency for SSDs which had high rates of theft in 2000 to have (relatively) high rates in 2012. However the correlation across SSDs between the theft rate in 2000 and the size of the change in the theft rate in 2012 was -0.31, suggesting that the size of the fall in theft rates was only weakly related to the level of theft in 2000.

Robbery offences across the Metropolitan SSDs are shown in Figure 5. The fall in robbery offences ranged from 80.3 per cent in the Lower Northern Sydney SSD to 28.3 per cent in the Newcastle SSD. As with theft, the variation in robbery offence rates across SSDs was much less marked in 2012 than it was in 2000. Between 2000 and 2012, the standard deviation in rates of robbery across areas fell by 76.9 per cent.

The change in different types of theft by SD

The figures presented, so far, make no distinction as to the type of theft. In this section we examine the change in rates of various subcategories of theft offence between 2000 and 2012. We begin by examining the changes across SDs in each of six major categories of theft: break and enter, motor vehicle theft, stealing from a dwelling, stealing from the person, stealing from a motor vehicle and stealing from a retail store (or shoplifting). In the next section we examine the same offences within the Metropolitan SSDs.

Figure 6 shows the percentage change in break and enter by SD. All SDs experienced a reduction in the rate of break and enter with the largest reduction occurring in the Sydney SD (down 69.2%) and the smallest in the Murrumbidgee SD (down 11.5%). The correlation between the rate of break and enter in 2000 and the size of the fall in break and enter between 2000 and 2012 was -0.30, suggesting that the size of the fall in this offence was only weakly related to the level of break and enter in 2000. It is worth noting that the largest reductions occurred in the most populated areas of the State.

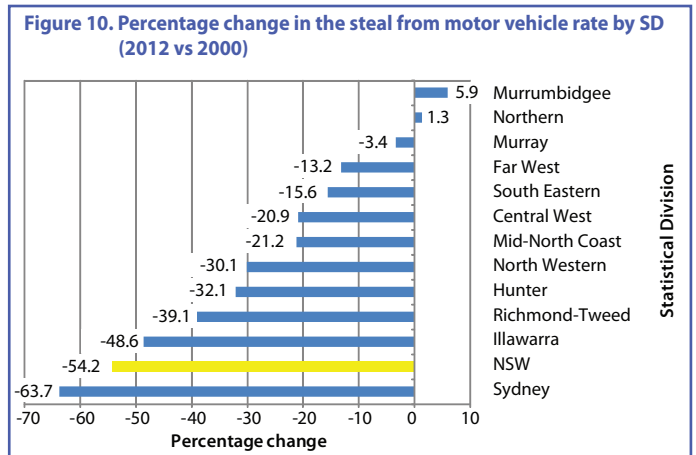Figure 4. Theft rate by Metropolitan Statistical Sub-Division and year (2000 and 2012)

Figure 5. Robbery rate by Metropolitan Statistical Sub-Division and year (2000 and 2012)

Figure 6. Percentage change in the break and enter rate by SD (2012 vs 2000)

Figure 7. Percentage change in the motor vehicle theft rate by SD (2012 vs 2000)

Statistical Division	Percentage change
Northern	15.8
Far West	-12.7
Murray	-21.0
Mid-North Coast	-33.3
Murrumbidgee	-34.4
Central West	-38.1
South Eastern	-44.9
North Western	-45.5
Richmond-Tweed	-46.8
Hunter	-53.4
NSW	-69.2
Sydney	-74.8
Illawarra	-76.8

Figure 9. Percentage change in the steal from person rate by SD (2012 vs 2000)

Statistical Division	Percentage change
Richmond-Tweed	23.2
Murrumbidgee	23.1
Hunter	14.3
Murray	2.5
Mid-North Coast	0.8
Central West	-3.3
Northern	-28.0
South Eastern	-40.8
NSW	-43.7
Illawarra	-45.6
Sydney	-48.5
North Western	-49.1

Far West not shown as there were less than 20 incidents in 2000 and 2012

Figure 8. Percentage change in the steal from dwelling rate by SD (2012 vs 2000)

Statistical Division	Percentage change
Murrumbidgee	-13.5
Northern	-14.2
North Western	-23.8
Mid-North Coast	-28.7
Murray	-31.0
Central West	-34.3
Hunter	-38.2
NSW	-39.0
Sydney	-41.9
Illawarra	-43.3
South Eastern	-45.5
Richmond-Tweed	-46.2
Far West	-55.6

Figure 10. Percentage change in the steal from motor vehicle rate by SD (2012 vs 2000)

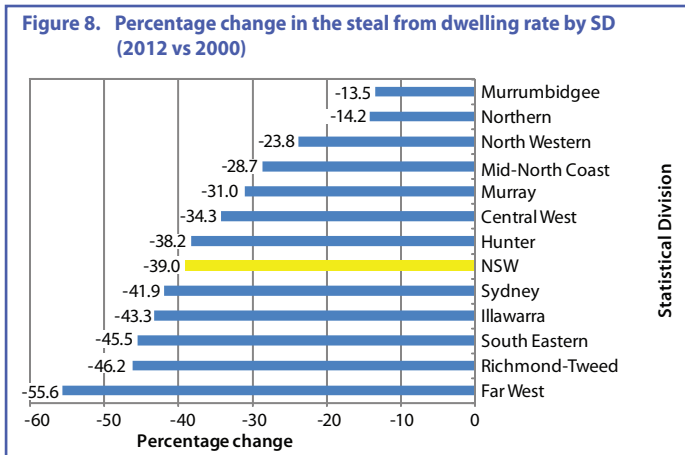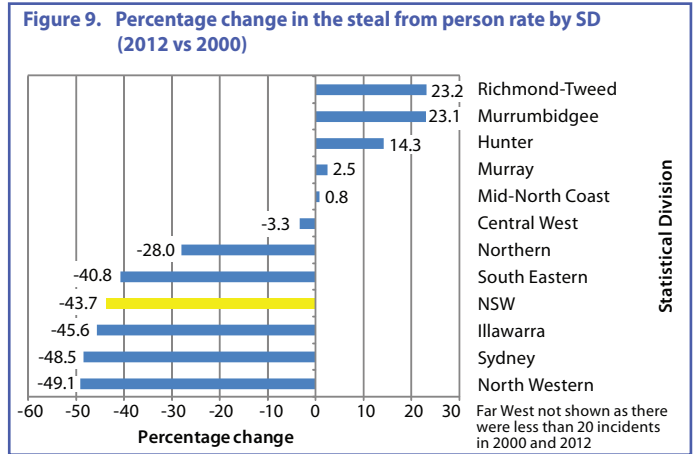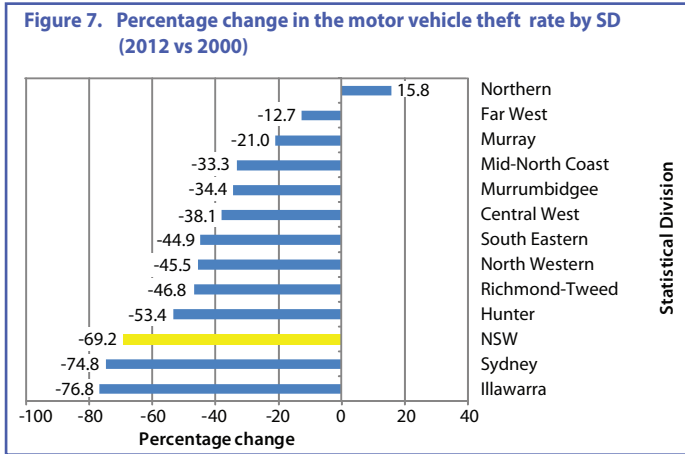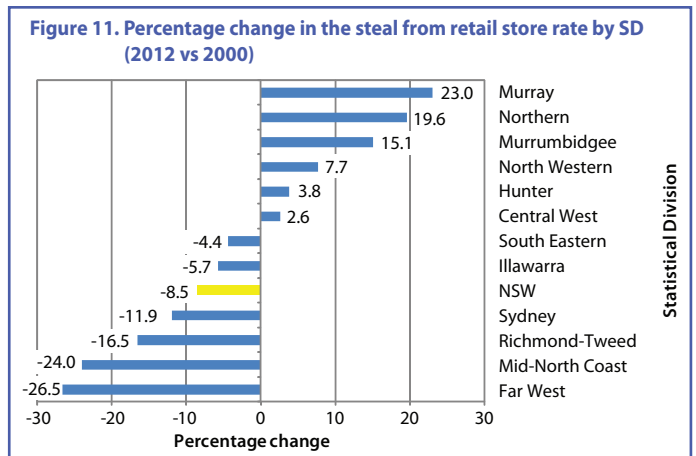| Statistical Division	Percentage change
Murrumbidgee	5.9
Northern	1.3
Murray	-3.4
Far West	-13.2
South Eastern	-15.6
Central West	-20.9
Mid-North Coast	-21.2
North Western	-30.1
Hunter	-32.1
Richmond-Tweed	-39.1
Illawarra	-48.6
NSW	-54.2
Sydney	-63.7

Figure 7 shows the percentage change in motor vehicle theft by SD. All SDs experienced a reduction in the rate of this offence with the exception of one. The Northern SD experienced a 15.8 per cent increase from 2000 to 2012. The largest reduction occurred in the Illawarra (down 76.8%), which was closely followed by the drop in Sydney (down 74.8%). In contrast to break and enter, the correlation between the rate of motor vehicle theft in 2000 and the size of the fall in this offence between 2000 and 2012 was strongly related to the level of motor vehicle theft in 2000 (-0.79).

Figure 8 shows the percentage change in rates of stealing from dwellings by SD. All SDs experienced a reduction in the rate of this offence. The largest reduction occurred in the Far West (down 55.6%) and the smallest in the Murrumbidgee SD (down 13.5%). As with break and enter, the correlation between the rate of stealing from dwellings in 2000 and the size of the fall in this offence between 2000 and 2012 was comparatively small (-0.36), indicating that the size of the fall in stealing from dwellings in an area was only weakly related to the level of stealing from dwellings in that area in 2000.

There were mixed results for steal from person rates. Figure 9 shows the percentage change in this offence by SD. Six SDs experienced a reduction in steal from person rates. The North Western SD had the largest drop (down 49.1%), while the Central West SD had the smallest drop (down 3.3%). Five SDs, however, experienced increased rates for this offence. Richmond-Tweed had the largest increase (up 23.2%), while the Mid-North Coast had the smallest increase (up 0.8%). The correlation between the steal from person rates in 2000 and

Figure 11. Percentage change in the steal from retail store rate by SD (2012 vs 2000)

Statistical Division	Percentage change
Murray	23.0
Northern	19.6
Murrumbidgee	15.1
North Western	7.7
Hunter	3.8
Central West	2.6
South Eastern	-4.4
Illawarra	-5.7
NSW	-8.5
Sydney	-11.9
Richmond-Tweed	-16.5
Mid-North Coast	-24.0
Far West	-26.5

the size of the fall in this offence between 2000 and 2012 was reasonably strong (-0.61).

Figure 10 shows the percentage change in stealing from motor vehicles by SD between 2000 and 2012. All SDs except two experienced a reduction in the rate of this offence. The offence increased slightly (up 5.9%) in the Murrumbidgee SD and in the Northern SD (up 1.3%). The largest reduction occurred in Sydney (down 63.7%). The next largest drop occurred in Illawarra (down 48.6%). The rate of stealing from motor vehicles in 2000 and the size of the fall in this offence between 2000 and 2012 were strongly correlated (-0.79).

There were mixed results for shoplifting rates across NSW. As can be seen from Figure 11, six SDs experienced a reduction in shoplifting rates. The Far West had the largest drop (down

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26.5%) and the South Eastern SD the smallest drop (down 4.4%). However, six SDs experienced increased shoplifting rates. These six were: Murray (up 23.0%), Northern (up 19.6%), Murrumbidgee (up 15.1%), North Western (up 7.7%), Hunter (up 3.8%) and the Central West (up 2.6%). The correlation between shoplifting rates in 2000 and the size of the fall in this offence between 2000 and 2012 was -0.15, suggesting that the size of the fall in this offence was only very weakly related to the level of shoplifting in 2000.

The change in different types of theft by metropolitan SSD

Figures 12 to 17 show the percentage change in specific theft offences for NSW Metropolitan SSDs between 2000 and 2012.

These figures show that, for four of the six theft offences, every metropolitan SSD experienced a rate reduction of at least 25.9 per cent. In some cases the reductions were more substantial than this. In the area with the smallest reduction in break and enter (Blacktown) the rate of break and enter fell by 56.1 per cent. In the area with the smallest reduction in motor vehicle theft (Newcastle), the rate of motor vehicle theft fell by 55.7 per cent. The largest reduction in any specific theft category occurred in Lower Northern Sydney, where the rate of motor vehicle theft fell by 84.0 per cent.

In a small number of areas, however, two of the six theft offences increased (for steal from person and shoplifting).

Figure 14. Percentage change in the steal from dwelling rate by Metropolitan SSD (2012 vs 2000)
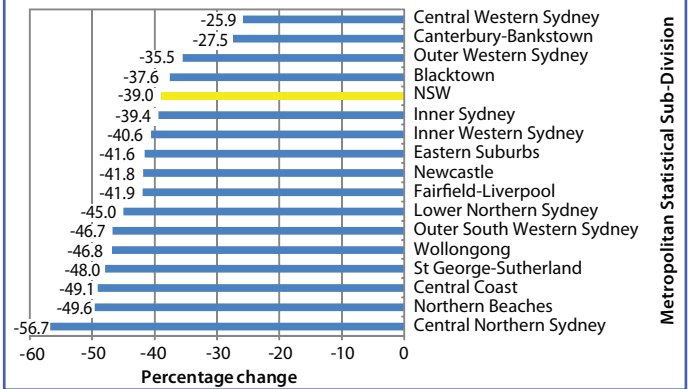

Figure 15. Percentage change in the steal from person rate by Metropolitan SSD (2012 vs 2000)
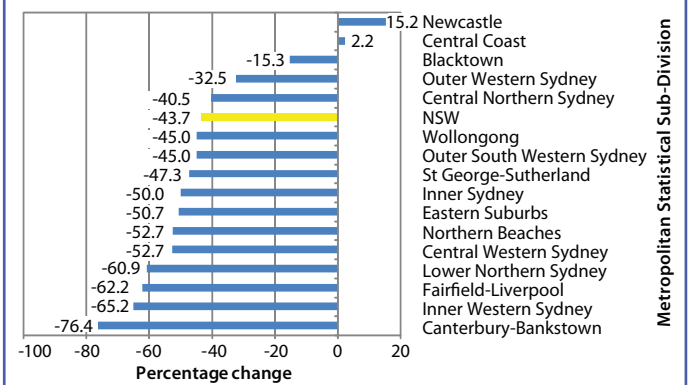

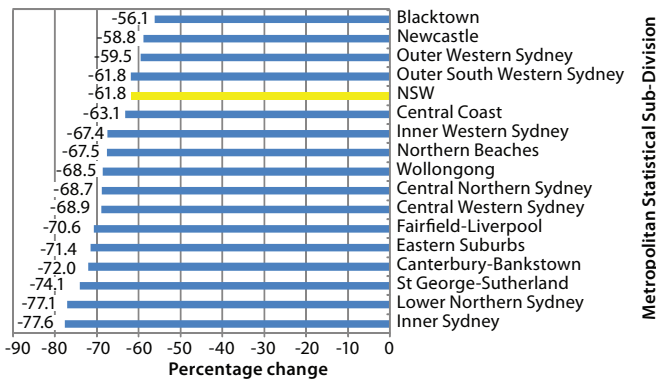Figure 12. Percentage change in the break and enter rate by Metropolitan SSD (2012 vs 2000)

Figure 16. Percentage change in the steal from motor vehicle rate by Metropolitan SSD (2012 vs 2000)
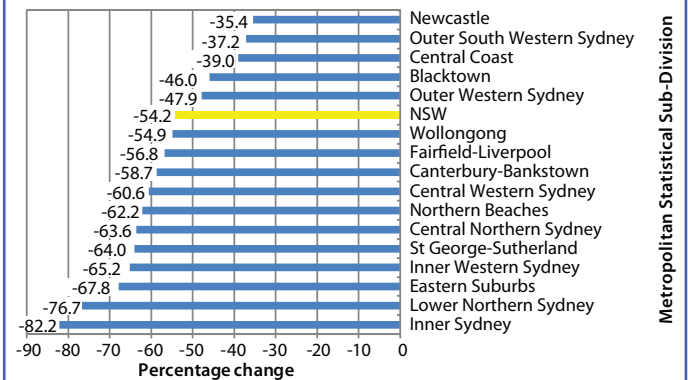

Figure 13. Percentage change in the motor vehicle theft rate by Metropolitan SSD (2012 vs 2000)
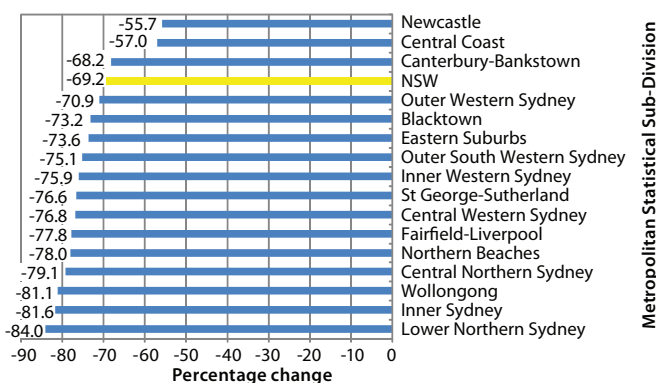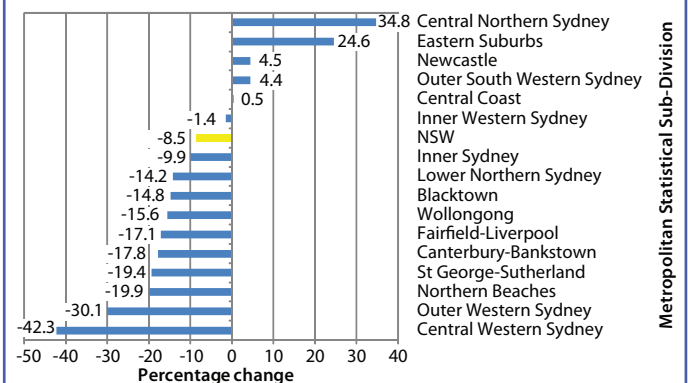

Figure 17. Percentage change in the steal from retail store rate by Metropolitan SSD (2012 vs 2000)

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In Newcastle SSD, for example, the rate of steal from person increased by 15.2 per cent. In Central Northern Sydney and the Eastern Suburbs, the rate of shoplifting increased by 34.8 per cent in the former case and 24.6 per cent in the latter.

Comparisons with the NSW rate

The fact that there has been a large fall in theft and robbery in an area does not mean that theft and robbery in that area has ceased to be a problem. It is of interest, therefore, to see how rates of theft and robbery in different areas have moved relative to the State rate. The easiest way to do this is to take each offence and each area, calculate the ratio of the rate of that offence in that area to the corresponding NSW rate in 2000, and then compare the result to the same ratio for 2012[7]. The percentage difference between these two ratios tells us whether the rate of that offence for that area has moved closer to the State rate or further away from it. An example might help to clarify the approach.

In 2000, the rate of motor vehicle theft in the Central West was 338.2 per 100,000 population. The state rate for this offence in that year was 809.6 per 100,000. The ratio of the rates was (338.2/809.6 =) 0.42. In other words, in 2000, the rate of motor vehicle theft in the Central West SD was a little under half the state rate. Equivalent calculations show that the ratio of the rate of motor vehicle theft in the Central West SD to the NSW rate in 2012 was (209.2/249.5=) 0.84. So the rate of motor vehicle theft in the Central West has moved from a little under half the State rate to over 80 per cent of the State rate (i.e. it has moved closer). Relative to the NSW rate, the rate of motor vehicle theft in the Central West SD has increased by 100.7 per cent.

Table 2 shows these calculations for robbery and theft offences in each of the NSW SDs and each of the Metropolitan SSDs. To make the table easier to interpret, areas where the rate of a particular offence has improved relative to the State rate are highlighted in yellow. Areas where the rate of a particular offence has deteriorated relative to the State rate are highlighted in red. In the Central West SD, for example, the rate

Table 2. Percentage change between the ratio of rates for robbery and theft offences for each SD and SSD compared to NSW, 2000 vs 2012

Region type	Region	Break and enter	Motor vehicle theft	Steal from dwelling	Steal from person	Steal from motor vehicle	Steal from retail store	Robbery
NSW Statistical Divisions (SDs)	Central West	50.6	100.7	7.7	71.8	72.8	12.2	76.1
	Far West	101.1	183.2	-27.3	80.8	89.6	-19.7	290.8
	Hunter	14.4	51.2	1.2	102.9	48.3	13.5	119.1
	Illawarra	-8.6	-24.8	-7.0	-3.5	12.3	3.1	20.9
	Mid-North Coast	63.6	116.5	16.9	79.0	72.1	-16.9	227.8
	Murray	76.1	156.5	13.0	82.0	110.9	34.5	261.2
	Murrumbidgee	131.9	112.7	41.8	118.6	131.3	25.8	43.7
	North Western	49.2	76.8	24.9	-9.7	52.7	17.7	-8.9
	Northern	128.9	275.8	40.6	27.9	121.2	30.7	133.0
	Richmond-Tweed	24.8	72.6	-11.8	118.8	33.1	-8.7	221.0
	South Eastern	3.8	78.8	-10.7	5.1	84.4	4.5	-34.2
	Sydney	-19.2	-18.3	-4.8	-8.5	-20.7	-3.7	-12.9
Metropolitan Statistical Sub-Divisions (SSDs)	Blacktown	14.9	-12.9	2.3	50.4	18.0	-6.9	33.4
	Canterbury-Bankstown	-26.6	3.3	18.8	-58.1	-9.7	-10.1	-32.0
	Central Coast	-3.4	39.6	-16.6	81.5	33.1	9.8	54.9
	Central Northern Sydney	-18.0	-32.3	-29.1	5.7	-20.4	47.4	-28.0
	Central Western Sydney	-18.4	-24.6	21.4	-16.0	-13.9	-36.9	-9.5
	Eastern Suburbs	-25.2	-14.5	-4.3	-12.5	-29.7	36.2	-25.6
	Fairfield-Liverpool	-23.0	-27.8	-4.8	-32.9	-5.6	-9.4	-16.8
	Inner Sydney	-41.4	-40.4	-0.7	-11.2	-61.1	-1.5	-28.9
	Inner Western Sydney	-14.6	-21.9	-2.6	-38.1	-24.0	7.8	-35.7
	Lower Northern Sydney	-39.9	-48.1	-9.9	-30.5	-49.1	-6.2	-41.2
	Newcastle	7.9	43.7	-4.7	104.7	41.1	14.2	114.2
	Northern Beaches	-14.9	-28.5	-17.5	-15.9	-17.4	-12.4	-31.2
	Outer South Western Sydney	0.0	-19.1	-12.7	-2.3	37.2	14.2	5.3
	Outer Western Sydney	6.1	-5.7	5.7	19.9	13.8	-23.5	40.3
	St George-Sutherland	-32.0	-24.0	-14.8	-6.4	-21.4	-11.9	11.2
	Wollongong	-17.4	-38.6	-12.9	-2.3	-1.6	-7.7	11.2

of break and enter has deteriorated by 50.6 per cent *relative to the State rate*. In the St George-Sutherland SSD, on the other hand, the rate of break and enter has improved by 32.0 per cent *relative to the State rate*. Inspection of the distribution of red and yellow shading in Table 2 indicates that in most parts of Sydney and Illawarra theft and robbery offences have improved relative to the State rate, whereas most areas of regional NSW have deteriorated relative to the State rate.

Discussion

The fall in theft and robbery in NSW (and other Australian States and Territories) over the last 13 years has been remarkable. The NSW theft rate in 2012 was less than half what it was in 2000. The robbery rate in 2012 was less than a third of what it was in 2000. Sydney and other urban areas, however, have benefited much more from this fall in crime than rural NSW. In some rural areas, rates of theft have actually increased. These findings raise two questions: 1) What caused the fall in property crime and robbery? and 2) why has the fall been more pronounced in urban NSW areas than in regional ones?

In the two decades prior to the heroin shortage, theft and robbery rates in Australia were rising rapidly (Mukherjee & Dagger 1990; Australian Bureau of Statistics 2001). The dramatic fall in theft and robbery offences from 2000 onwards was both unprecedented and unexpected. It is true that the United States and Britain experienced falls in crime around this time but the crime drop in these countries began some years earlier than in Australia and affected a much wider range of offences (US Department of Justice 2013; UK Office for National Statistics 2013). If the fall in theft and robbery offences in Australia was caused by factors within Australia, it is important to know what they were. If they can be manipulated or controlled in any way, they may provide valuable insights into the effectiveness of existing or future policies in controlling crime.

As it happens, very little research has been conducted into why theft and robbery rates have fallen in Australia. Only two studies have been conducted to date. The first, by Moffatt et al. (2005), focussed on the influence of the Australian heroin shortage on burglary and robbery in NSW. The second, by Wan et al. (2012), focussed on the effect of the NSW criminal justice system on property and violent crime, but included a measure of the influence of the heroin shortage. Some background information is necessary in order to understand the significance of the heroin shortage.

Past research has shown that dependent drug users, especially dependent heroin users, frequently commit theft and robbery offences in order to fund their drug purchases (Dobinson & Ward 1985; Hogg 1987; Stevenson & Forsythe 1998; Chilvers & Weatherburn 2003). The rise in theft and robbery rates in Australia during the 1980s and 90s coincided with falling heroin prices, increasing heroin purity and a rapid growth in heroin use (Degenhardt & Day 2004). Around Christmas 2000, the price of heroin rose by 75 per cent and the purity fell from around 70 per cent to around 30 per cent. From this point on, both heroin use and crimes known to be commonly committed by heroin users (viz. burglary and robbery) began to fall (Degenhardt & Day 2004).

Moffatt et al. (2005) recognised that heroin shortage could have affected levels of burglary and robbery but pointed out that other factors correlated with the shortage, such as increased use of imprisonment, reduced levels of unemployment or growing consumer confidence, might also have played a role. They noted that these factors continued to change in a favourable direction (along with crime) long after the primary indicator of heroin use (e.g. heroin overdoses) had stabilised (at a lower level). To test the hypothesis that the heroin shortage contributed to the fall in burglary and robbery they examined the influence of heroin use on burglary and robbery between January 1998 to December 2003, while controlling for changes in long-term unemployment, consumer confidence (a proxy for average weekly earnings) and the aggregate prison time being served by offenders.

The results revealed a strong association between crime trends and heroin use (as measured by the number of heroin overdoses) even after adjusting for the effects of long-term unemployment, consumer confidence and the aggregate prison time being served by offenders. These other factors, however, also had a significant effect on crime trends (although aggregate prison time affected burglary, not robbery). That study also found that rates of entry into drug treatment were significantly correlated with falling crime rates, even after adjusting for all the factors mentioned above. The research by Moffatt et al (2005), then, suggested that the drop in property crime was attributable to falling drug use, an improving economy, a tougher criminal justice system and greater access to drug treatment.

In 2012, Wan et al. (2012) published a more comprehensive study of trends in property and violent crime across 153 NSW LGAs between 1996 and 2008. Their study, like that conducted by Moffatt et al. (2005), included measures of the economy (average weekly income) and heroin use (heroin overdoses). It also included measures of the likelihood of arrest, the likelihood of imprisonment given arrest and the average prison term if sentenced to prison. As with Moffatt et al. (2005), their measure of heroin use remained strongly associated with the fall in crime even after adjusting for the effects of changes in income, the risk of arrest, the risk of imprisonment and the length of the average prison term. All these other factors except the last, however, were also significantly associated with the fall in property crime.

The research by Moffatt et al. (2005) and Wan et al. (2012) has yielded some important insights into the fall in theft and robbery in NSW but much work remains to be done before our understanding of the fall in NSW or, indeed, across Australia, is complete. No-one has yet examined the contribution of changes in the number of people in the peak offender-prone age bracket (16-24 years), changes in vehicle and household security, changes in the market for stolen goods (Fitzgerald & Poynton 2011) or changes in police tactics and resources, although any or all of these factors might have influenced

crime. Nor has anyone tested the possible effect of changes in abortion laws or falling lead levels, both of which have been cited as possible causes of the long-term fall in crime in the United States and both of which have been the focus (in that country) of considerable research (Levitt 2004; Nevin 2007).

This makes it difficult to answer the question of why the fall in theft and robbery in NSW was much more pronounced in urban than in rural areas. The correlations reported earlier show that the size of the fall in crime in a given area was (for most offences) not strongly related to the rate of that crime in that area in 2000. This rules out any explanation based on regression to the mean[8]. It would be interesting to know whether the regional pattern in the size of the crime drop observed in NSW is mirrored in other States and Territories. Unfortunately, the Australian Bureau of Statistics does not publish any regional breakdown of national crime data. It is therefore impossible to determine whether the regional pattern observed in NSW is due to a State-specific set of factors, factors impacting the country as a whole or some combination of the two.

Some of the factors identified as contributing to the general drop in theft and robbery may have had effects that were more pronounced in urban areas than in regional areas. The growth in average weekly earnings is an example. In terms of State-specific factors, it is worth noting that the major markets for heroin in NSW at the time of the heroin shortage were Kings Cross, Cabramatta and Redfern (Degenhardt & Day 2004). If the reduction in theft and robbery is partly attributable to the fall in heroin use and if heroin users commit crime in areas close to where they purchase heroin, we would expect the reduction in theft and robbery to be larger in the Sydney SD than elsewhere. This prediction is broadly supported by the data in Figures 6 to 17.

The current results highlight the challenges faced by Governments in determining how best to measure their own performance in reducing crime. If the goal of policy is to reduce overall levels of crime (as it is in the NSW State Plan), it would make sense for police to focus more attention and resources on urban areas with large populations (and high crime volumes) than on rural areas with small populations (and low crime volumes) even if the overall rate of crime (viz. number of crimes per head of population) in rural areas were higher than in urban areas. If the goal of policy were to reduce the number of 'crime-prone' communities (i.e. communities where the risk of crime is above some specified level), it would make more sense for police to focus resources on areas with high crime rates, even if the total volume of crime in these areas is small.

In practice, police (and law enforcement authorities more generally) cannot afford to pursue either of these objectives to the exclusion of other. Areas with large populations often place larger demands on police and criminal justice resources than areas with smaller populations but higher crime rates. Police and criminal justice agencies must balance the need to meet demands for service in highly populated urban areas with the need to respond to crime in sparsely populated areas where the residents are at high risk.

Notes

1 The distinction between robbery and theft is that robbery involves violence or the threat of violence.

2 Data from the NSW Police Force Computerised Operational Policing System (COPS) have been used to calculate offence rates per 100,000 population for the years 2000 and 2012. Population data for the rate calculations were obtained from the 2012 Australian Bureau of Statistics publication: Regional Population Growth, Australia, 2010-11, Cat. No. 3218.0. As no population estimates were available for 2012 at the time this brief was prepared, rates for 2012 were calculated using 2011 population estimates.

3 The two offences are shown separately because robbery is a much more serious offence than theft. Theft involves the unlawful taking of property whereas robbery involves theft accompanied by violence or the threat of violence.

4 In this brief 'theft' includes break and enter dwelling and non-dwelling, motor vehicle theft, and steal from motor vehicle/dwelling/person/retail store.

5 Separate analyses for each type of robbery offence are not shown because there are too few cases of some types of robbery to conduct a detailed regional analysis.

6 The correlation used here is the product-moment correlation.

7 The electronic data file associated with this publication (available from BOCSAR's website *here*) provides the 2000 and 2012 rates for each NSW SD and SSD for robbery and each of the six theft offences.

8 Regression to the mean is a phenomenon in which when the first measurement of a process or phenomenon is high or extreme, the next measurement tends to be lower.

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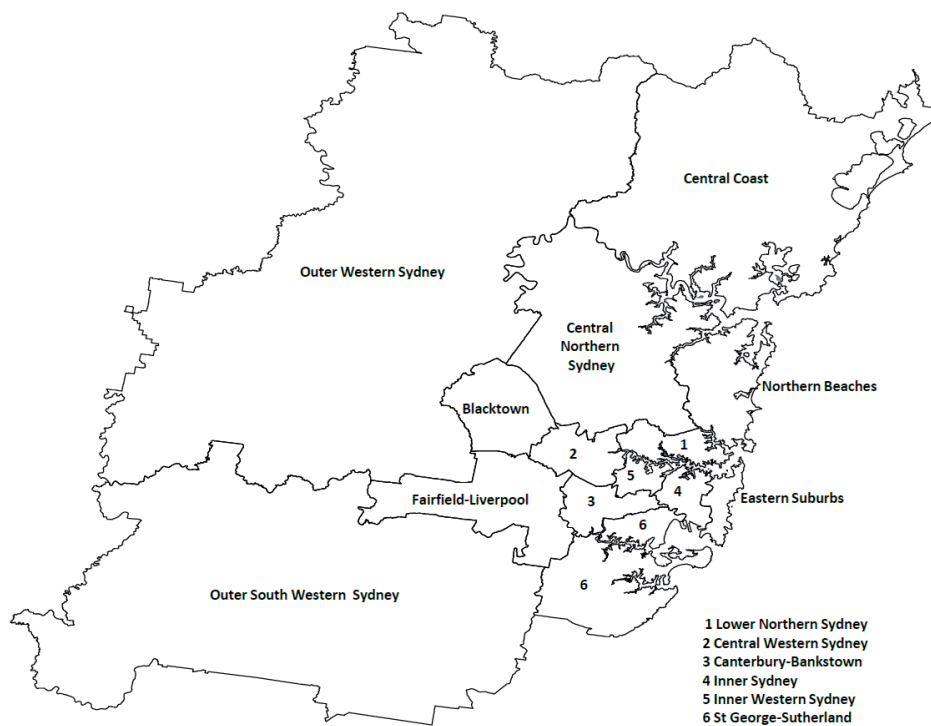
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APPENDIX 1. MAPS

Map 1. New South Wales Statistical Division boundaries

Map 2. Sydney Statistical Subdivision boundaries

1 Lower Northern Sydney
2 Central Western Sydney
3 Canterbury-Bankstown
4 Inner Sydney
5 Inner Western Sydney
6 St George-Sutherland

APPENDIX 2. LGAs IN METROPOLITAN STATISTICAL SUBDIVISIONS

Metropolitan Statistical Subdivisions

Inner Sydney	*Inner Western Sydney*	*Central Northern Sydney*
Botany Bay	Ashfield	Hornsby
Leichhardt	Burwood	Ku-ring-gai
Marrickville	Canada Bay	The Hills Shire
Sydney	Strathfield	
Eastern Suburbs	*Central Western Sydney*	*Northern Beaches*
Randwick	Auburn	Manly
Waverley	Holroyd	Pittwater
Woollahra	Parramatta	Warringah
St George – Sutherland	*Outer Western Sydney*	*Central Coast*
Hurstville	Blue Mountains	Gosford
Kogarah	Hawkesbury	Wyong
Rockdale	Penrith	
Sutherland Shire		
Canterbury – Bankstown	*Blacktown*	*Newcastle*
Bankstown	Blacktown	Cessnock
Canterbury		Lake Macquarie
		Maitland
Fairfield – Liverpool		Newcastle
Fairfield	*Lower Northern Sydney*	Port Stephens
Liverpool	Hunters Hill	
	Lane Cove	
Outer South Western Sydney	Mosman	*Wollongong*
Camden	North Sydney	Kiama
Campbelltown	Ryde	Wollongong
Wollondilly	Willoughby	Shellharbour

APPENDIX 2. LGAs IN NSW REGIONAL STATISTICAL DIVISIONS

NSW regional Statistical Divisions

Hunter	*Illawarra*	*Richmond – Tweed*	*Mid-North Coast*
Cessnock	Kiama	Ballina	Bellingen
Dungog	Shellharbour	Byron	Clarence Valley
Gloucester	Shoalhaven	Kyogle	Coffs Harbour
Great Lakes	Wingecarribee	Lismore	Greater Taree
Lake Macquarie	Wollongong	Richmond Valley	Port Macquarie–Hastings
Maitland		Tweed	Kempsey
Muswellbrook			Lord Howe Island
Newcastle			Nambucca
Port Stephens			
Singleton			
Upper Hunter Shire			

Northern	*North Western*	*Central West*	*South Eastern*
Armidale Dumaresq	Bogan	Bathurst Regional	Bega Valley
Glen Innes Severn	Bourke	Bland	Bombala
Gunnedah	Brewarrina	Blayney	Boorowa
Guyra	Cobar	Cabonne	Cooma–Monaro
Gwydir	Coonamble	Cowra	Eurobodalla
Inverell	Dubbo	Forbes	Goulburn Mulwaree
Liverpool Plains	Gilgandra	Lachlan	Harden
Moree Plains	Mid-Western Regional	Lithgow	Palerang
Narrabri	Narromine	Oberon	Queanbeyan
Tamworth Regional	Walgett	Orange	Snowy River
Tenterfield	Warren	Parkes	Upper Lachlan Shire
Uralla	Warrumbungle Shire	Weddin	Yass Valley
Walcha	Wellington		Young

Murrumbidgee	*Murray*	*Far West*	
Carrathool	Albury	Broken Hill	
Coolamon	Balranald	Central Darling	
Cootamundra	Berrigan	Unincorporated Far West	
Griffith	Conargo		
Gundagai	Corowa Shire		
Hay	Deniliquin		
Junee	Greater Hume Shire		
Leeton	Jerilderie		
Lockhart	Murray		
Murrumbidgee	Tumbarumba		
Narrandera	Urana		
Temora	Wakool		
Tumut	Wentworth		
Wagga Wagga			